MARINE REVIEW.

VOL. X. CLEVELAND, O., SEPTEMBER 13, 1894. No. 11.

Statistics that Relate to Freights.

The monthly report of St. Mary's Falls canal traffic, as furnished by Mr. Wheeler, who is in direct charge of the canal under Gen. Poe of the war department, has come to be the barometer of lake commerce. These reports, covering only Lake Superior business, furnish the only reliable statistics of lake commerce that are to be obtained at all times during the season. As the entire freight business of the canal up to Sept. 1 was 593,536 tons in excess of the traffic up to the same date in 1893, it is now about certain that the tonnage for the full season will exceed that of the record year, 1892, when a little more than eleven million tons of freight was passed through the canal.

But it is the comparative movement of soft coal and iron ore in which vessel owners are most interested at this time. During the month of August 648,042 tons of soft coal went to all Lake Superior ports, which added to 286,785 tons, the small amount moved previous to that date, gives a total of 934,827 tons forwarded to Sept 1. During the full season of 1893 the shipments of soft coal to all Lake Superior ports aggregated in round numbers 2,500,000 tons. This would apparently leave a big deficiency in soft coal shipments, but it must be remembered that as a big surplus of coal was shipped to Lake Superior last season, so much so that no new coal was required until about July 1, the requirements this season will practically cover only nine months, as against fifteen months last season.

Shipments of of ore from Lake Superior ports again show a large increase. Reduced to gross tons, the shipments through the canal during August were 393,286 tons greater than during August of 1893, and the aggregate from the opening to Sept. 1 is 3,757,940 tons, which is 1,421,661 tons more than was shipped through the canal up to Sept. 1, 1893. In this connection, it must be remembered that, although exact figures regarding shipments from Lake Michigan—Escanaba and Gladstone—are not obtainable, it is known that there is a decrease in the Lake Michigan movement to Sept. 1, as compared with that date last year, of full 800,000 tons, so that ore shipments from all points are now in round numbers about 600,000 tons greater than they were at this time a year ago.

Shipments of flour and lumber from Lake Superior show a remarkable gain over last year, the increase of the former amounting to 804,681 barrels and that of the latter 109,374,000 feet. A table giving the freight movement in detail follows:

FREIGHT MOVEMENT TO AND FROM LAKE SUPERIOR UP TO SEPT. 1, 1894, COMPARED WITH MOVEMENT TO THE SAME DATE IN 1893.

EAST BOUND.

ITEMS.	Designation.	To Sept. 1, season of 1893.	To Sept. 1, season of 1894.
Copper	Net tons	56,023	61,225
Corn	Bushels	1,507,743	1,314,603
Building stone	Net tons	14,567	15,595
Flour	Barrels	3,718,614	4,523,295
Iron ore	Net tons	2,616,633	4,206,894
Iron, pig	Net tons	14,375	13,481
Lumber	M. ft. B. M.	326,259	435,633
Silver ore	Net tons	1,090	412
Wheat	Bushels	26,021,018	13,517,730
Unclassified freight	Net tons	79,455	83,727
Passengers	Number	6,768	10,450

WEST BOUND.

Coal, anthracite	Net tons	1,921,803	288,313
Coal, bituminous	Net tons		934,827
Flour	Barrels	1,065	753
Grain	Bushels	4,650	2,500
Manufactured iron	Net tons	46,076	14,907
Salt	Barrels	104,213	99,876
Unclassified freight	Net tons	152,537	138,075
Passengers	Number	7,699	10,926

*Anthracite and bituminous were not separated in 1893.

Traffic through the canal during August not only exceeds that of August, 1893, but exceeds that of the greatest previous month in the history of the canal—July, 1893—by 273,608 tons of freight. The report also shows the largest day's freight traffic in the history of the canal by 10,748 tons, 105,097 tons having passed through on the 20th. Following are some further extracts from the report:

NUMBER AND CLASS OF VESSELS, AUGUST, 1894.

Propellers	1,583
Sail vessels	585
Unregistered craft	101
Total	2,269
Total number of lockages	924
Total registered tonnage, net	1,991,996
Total freight " "	2,290,791
Freight, tons, east bound, "	1,560,925
" " west " "	729,866
Total number of passengers	8,700

Time lock was operated, 645 hours 15 minutes.

Aggregate time consumed by vessels in passing, 1,355 hours and 30 minutes.

The canal business of August, this year, is compared with that of August, 1893, in the following table:

	Aug., 1893.	Aug., 1894.	Increase.
Vessel passages	1 815	2,269	454
Registered tons, net	1,391,758	1,991,996	600,238
Freight " "	1,580,110	2,290,791	710,681
Passengers	5,660	8,700	3,040

COMPARISON OF FREIGHT TONNAGE TO SEPT. 1, 1893 AND 1894.

	To Sept. 1, '93.	To Sept. 1, '94.
East bound freight, net tons	4,527,580	5,595,113
West " " " "	2,165,708	1,291,711
Total freight, net tons	6,693,288	7,286,824
Increase, net tons		593,536

During the month three rafts bound for Port Huron, containing 11,410,000 feet, passed over the rapids.

Preparing Legislative Matters.

Secretary Keep of the Lake Carriers' Association, who recently returned from a European trip, was in Cleveland Tuesday, and with Treasurer Geo. P. McKay fixed upon new aids to navigation that will be sought from the next congress. The list includes the following: Range lights above Grassy island, Detroit river, to intersect the Mamajuda range, $1,200 in addition to a like amount already appropriated; ranges at north end of Grassy island, Detroit river, $5,500. In connection with this latter item the following explanation is made: When a vessel leaves Detroit for Lake Erie it is carried by the direction of the channel and the current of the river toward the head of Fighting island, which is low and has flats covered with water, extending 800 feet or more from the shore line toward the channel on the west side of the island near its north end. It is proposed to place range lights to mark the channel, so that vessels may take a more direct and certain course and avoid the danger of running upon the flats. In going up the river the same range will indicate the point at which the range past Grassy island may be dropped with certainty of clearing the flats off Fighting island.

It is also intended to ask for the following: At Eagle Harbor, fog signal; Rock of Ages, southwest end of Isle Royal, a light; South-East point, North Manitou island, a light; Middle island, Lake Huron, a light; Lansing shoal, north of Squaw island, a light-ship; Death's Door, range lights; Gravelly island, Poverty passage, light-ship.

A Suggeston for the Inspectors.

It has been suggested, as a result of General Dumont's action in taking up the matter of negligence regarding the use of passing signals on the lakes, that if a few of the local or supervising inspectors were given an opportunity to make a trip or two on lake steamers, they would readily find cause for action against those who are to blame for the wholesale charges made against vessel masters. The chief of the inspection service may hold that it is not the duty of the officers of the service to hunt down offenders, but in the absence of full attention to duty on the part of the revenue cutters, the steamboat inspectors could, in the way suggested, do a great deal to correct the sins of omission committed by some captains and for which all are made to rest under charges. It is not to be expected that any of the masters who are careful about passing signals will themselves make complaint.

Ship Building Matters.

The steel steamer to be launched by the Globe Iron Works Company, Cleveland, today (Thursday) will probably be ready to leave on her first trip about Oct. 15. She has been engaged by the Northern Steamship Company for the flour trade between Duluth and Buffalo, but is still the property of the builders and a name was not selected for her before launching on that account. This boat, which has several special structural features insuring great strength, and which will rank among the best freight carriers on the lakes has been described in the REVIEW. Her two Scotch boilers, which have been referred to as the largest ever constructed in this part of the country, are each 16 feet diameter by 12½ feet long, the diameter requiring a shell of $1\frac{5}{16}$ inches thickness. They have four furnaces each and are adapted to 160 pounds steam pressure. Cylinders of the triple expansion engines are also a little larger than those of engines in other freight boats built lately, the diameters being 24, 39 and 63 inches by 42 inches stroke, as against 24, 38 and 61 inches by 42 inches stroke in the first of the Minnesota line ships. The Minnesota boats have each three 12-foot boilers.

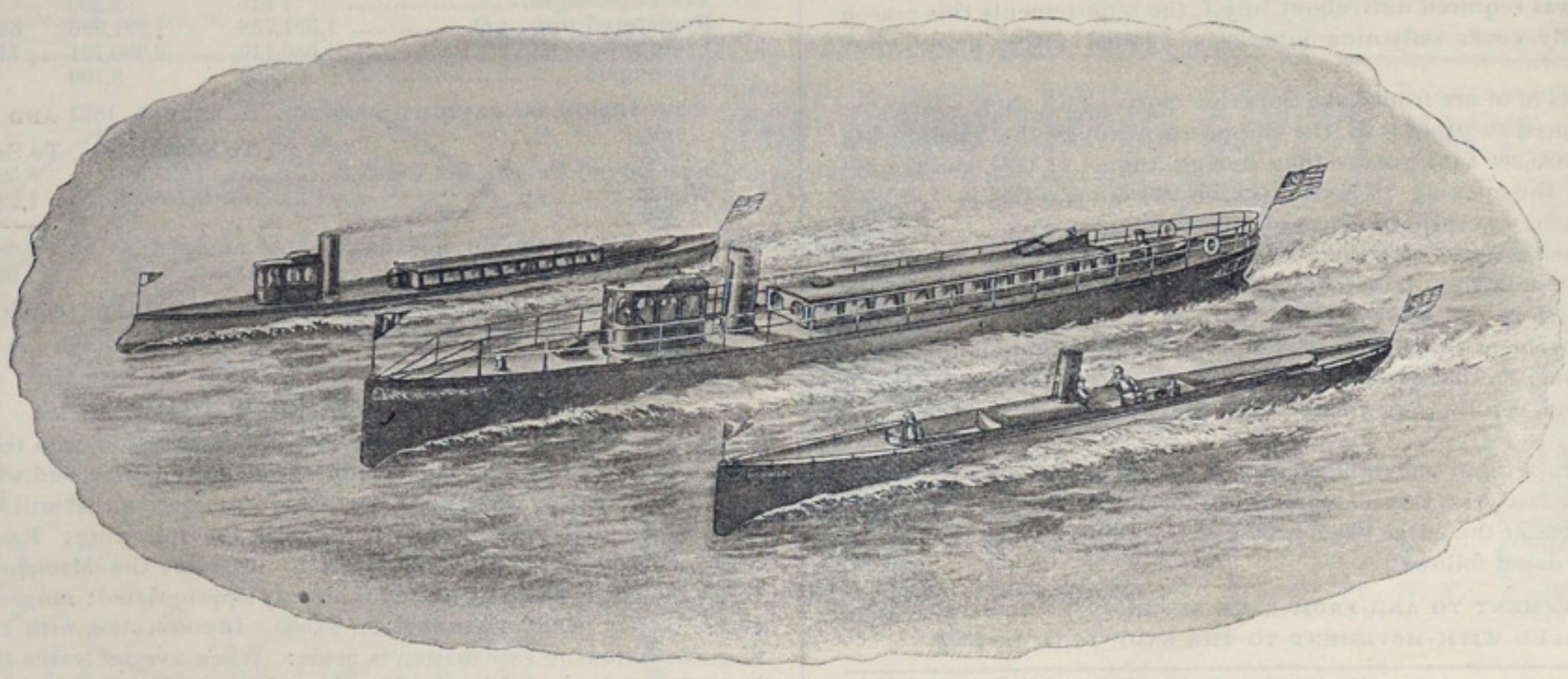
Arrangements were completed a few days ago for the new steel freight steamer which F. W. Wheeler & Co. have had under consideration for some time past. The boat is to be built for William H. Gratwick of Buffalo, Capt John Mitchell and others of Cleveland and will be managed in the Cleveland office of Mitchell & Co. with other boats controlled by the same owners. She will be 352 feet keel, 44 feet beam and 27 feet moulded depth and will be constructed without gangways or appliances for handling package freight. Engines will be triple expansion with cylinders 20, 32 and 54 inches diameter by 42 inches stroke, and the boilers, two in number, will be 13½ by 12 feet, allowed 170 pounds of steam.

whenever the date for the official test is set. Much interest attaches to the trial of the Raleigh, because she is the first vessel that has been built at a navy yard by the government since the war. Her twin, the Cincinnati, was constructed at the Brooklyn navy yard, and has gone up Long Island sound for her trial. The Raleigh was built at Norfolk.

A writer in the New York Herald estimates that in a fifteen minutes' engagement between such a battleship as the new Indiana on one side and two armored cruisers like the New York and two protected cruisers like the Cincinnati on the other side, the cost to the Indiana for ammunition and torpedoes alone would amount to $74,353, without calculating the cost of fuel, the damage to the ship or the cost of her maintenance in wages, etc. The cost to a 3,000-ton cruiser like the Cincinnati for such a fifeen-minute fight is estimated at $28,736.

A paper on the "Ship of the Future," prepared for the inaugural meeting of the American Society of Naval Architects and Marine Engineers, and printed in a recent issue of the REVIEW, seems to have greatly amused the editor of Fairplay, London, who says: "If only a moiety of the good things foreshadowed by Mr. H. T. Gause come into practical operation before the millennium takes place those who are wondering on this sphere when the time comes will doubtless subscribe for a handsome memorial for Mr. H. T. Gause."

A. W.Getchell, a Cleveland engineer, has invented a buoyant screw propeller, which he thus describes: "It consists of a hollow screw, mounted on a tube and filled with cork. The screw is made full length of the boat. There are two or more employed for each boat. At intervals where necessary the screw is broken (but not the tube), and a journal is fixed to the tube with the top of the journal cap extending above the water, high enough to allow cross beams to extend from one screw to the other, on which is erected a deck, there being nothing in the water but the tubes, screw journals, with a gear fastened to the tube to drive the screws, the cargo being on deck above the water. Consequently the displacement is reduced to the minimum. There being no wash from the screw and no bow waves, such a boat can be used for canal purposes at a high rate of speed."



THREE FASTEST STEAM YACHTS KNOWN—BUZZ, FISEEN AND NORWOOD.

See Marine Review, Vol. X, No. 10, Page 11.

Col. S. B. Dick, president of the Pittsburg, Shenango & Lake Erie Railway and also the moving spirit in Conneaut harbor enterprises, is still working on the project for a car ferry service between Conneaut and Port Dover, Ont., to connect at the latter place with the Grand Trunk railway. He is reported to have said in Conneaut a few days ago that the car ferry company would be organized in New York this week.

In General.

It is again rumored in New York that American capital will be applied to a completion of the Panama Canal.

It is expected that the trial of the torpedo boat Ericsson, which has been so long delayed, will take place during the latter part of this week.

Mr. Maxim in his flying machine produces a horse power with about 8 pounds of machinery. This is doing better than the engineers who have been making fast yachts and other small boats of high power.

According to elaborate statistical returns lately issued by the British board of trade the total existing tonnage of the British merchant navy is more than that of all the other nations of the world together. The exact figures given are: Total tonnage of the world, 24,569,496; total British tonnage, 12,969,951.

On the first inst., the wheat stocks available in the United States and Canada aggregated 88,358,000 bushels, the largest Sept. 1 stocks on record. On Sept. 1 in the years 1889-90-91, the average grand total of Canadian and American wheat stocks available was not far from 28,000,000 bushels, less than one-third what they are at present, when they are 25 per cent. larger than one year ago.

Everything is in readiness for the trial trip of the new cruiser Raleigh. She has had a successful machinery trial at Norfolk, and can go to sea

Cargo and Speed Records.—Lake Freight Steamers.

Iron ore.—S. S. Curry, Hawgood & Avery Transit Company of Cleveland, 4,569 gross or 5,117 net tons, Escanaba to South Chicago; Maritana, Minnesota Steamship Company of Cleveland, 4,260 gross or 4,771 net tons, Escanaba to South Chicago; Selwyn Eddy, Eddy Bros. of Bay City, Mich., 3,897 gross or 4,364 net tons, Escanaba to Ashtabula; Kearsarge, Interlake Company of Cleveland, 3,718 gross or 4,164 net tons, Escanaba to Cleveland.

Grain.—Selwyn Eddy, Eddy Transportation Company of Bay City, 130,820 bushels of wheat, Detroit to Buffalo; Centurion, Hopkins Transportation Company of St. Clair, Mich., 147,812 bushels of corn, Chicago to Erie; Onoko, Minch estate of Cleveland, 187,657 bushels oats, Chicago to Buffalo.

Coal.—S. S. Curry, Hawgood and Avery Transit Company of Cleveland, 4,535 net tons bituminous, Conneaut to Gladstone; Selwyn Eddy, Eddy Bros. of Bay City, Mich., 4,252 net tons anthracite, Buffalo to Milwaukee.

Speed.—Owego, Union Line of Buffalo, Buffalo to Chicago, 889 miles, 45 hours and 16 minutes, 16.4 miles an hour; Centurion, Hopkins Transportation Company of St. Clair, Mich., Buffalo to Duluth, 997 miles, 67 hours and 50 minutes, 14.7 miles an hour.

Capt. Peck has a Modern Steamer.

Somebody in Detroit who undestands the value of engineering tests of lake steamers, probably Mr. W. A. Livingstone, has summarized a few important items, from the test of the steamer Harvey H. Brown, made recently by George C. Shepard of Cleveland and published in late issues of the REVIEW. The Brown is the latest and most economical of all the large freight steamers turned out by the Detroit Dry Dock Company. Her average speed with water ballast only was 14.51 statute miles per hour, the mean revolutions of her engines being 84½ per minute, and the slip of her screw being 5 per cent. Her displacement with water ballast solely was 2,485 tons, and the average indicated horse power of engines on this run 1,293. Her consumption of fuel was 2,397 pounds per hour, which was equivalent to a consumption of 1.86 pounds per I. H. P. per hour. On the test of the ship when loaded, she had 3,411 net tons of cargo aboard and made an average speed of 13.2 miles per hour with her engines making 81.37 revolutions per minute, the slip of her wheel being 10½ per cent. Her indicated horse power was 1,266 and coal consumption 2,375 pounds per hour. Her consumption of fuel loaded was, therefore, 1.87 pounds per I. H. P. per hour. This last figure is the distinctive rate which shows the relative performance of the engine plant in the steamer.

"From many trials made of other lake steamers equipped with tri-compound engines," says the author of this summary, "it is certain that the average lake steamer of this class consumes, under ordinary conditions, not less than about 2 pounds of coal per I. H. P. per hour, so that the performance of the engine plant of the Brown must be gratifying alike to both the builders and the owners. On the other hand, a consumption of 1½ pounds of fuel per I. H. P. per hour, or a consumption of nearly 20 per cent. less than that of the Brown, is not an uncommon result in a modern ocean tramp steamer, so that while the conditions of operation are somewhat different on our inland lakes than those on salt water, at the same time it is evident that there is a considerable field for improvement either in lake engines or boilers, or perhaps in both, to reach the standard set up by our English cousins. The displacement loaded was 5,365 tons, and it is interesting to know that this displacement was moved on practically the same horse power and coal consumption as when light, at a speed of 13.2 miles per hour.

"Another pertinent fact was developed. It took only a little over one per cent. of the total power of the main engines to drive the attached air pump, which shows the possible limits of economy by independent air pumps. The consumption of water per hour was 21,083 pounds, which made an average of 16.2 pounds of water per I. H. P. per hour.

"To the lay mind these facts may not give any very definite conceptions but the following statement will: With coal costing $2.25 per ton, one cent's worth of of fuel used on this ship will move a ton of freight 156 miles; or to put it differently, four-fifths of an ounce of coal will move a ton of freight a mile at a speed of 13.2 statute miles per hour."

Caught In the Rivers.

The fact that a contract for building a ship or any part of a ship is not a maritime contract was again very forcibly brought out, a short time ago, in a legal action on the lakes that has some peculiar features. The Globe Iron Works Company of Cleveland furnished boilers for the steel lumber carrier J. B. Ketcham, which was built by the Craig Ship Building Company of Toledo, and which was afterward the subject of legal dispute, on account of the failure of Michigan lumber dealers for whom she was built. Failing to catch the Ketcham in an Ohio port, the attorneys of the Globe company caused her to be attached while passing up the Detroit river, thus bringing action in the Michigan state courts. The owners of the boat demurred, raising several questions relating to jurisdiction, but their objections were overruled, the supreme court of the state taking occasion to again refer to the matter of maritime contracts in the following language:

"A claim for the price of a boiler and smoke stack furnished in the building of a steamer before her launching is founded on a non-maritime contract, which is enforceable in the state courts. Whatever may once have been the rule, it is now established beyond controversy that contracts for the construction of vessels and for the furnishing of materials therefor before they are launched are non-maritime, and that liens and proceedings to enforce such liens are under state control and may be enfoced in state courts. The latest enunciation of the doctrine by the supreme court of the United States is found in the case of the J. E. Rumbell, 148 U. S. 11, 13, Supreme Court Reporter, 498, where it is said: 'It is now settled that a contract for building a ship being a contract made on land, is not a maritime contract, and that a lien to secure it given by local statute is not a maritime lien, and can not, therefore, be enforced in admiralty.' Many authorities are there cited and commented upon. After the vessel is launched contracts for equipment or repairs or material are maritime. Before the vessel is launched they are contracts upon land, and are non-maritime. The distinction is so clearly pointed out by numerous authorities and the rule is so firmly established that we deem further discussion unimportant."

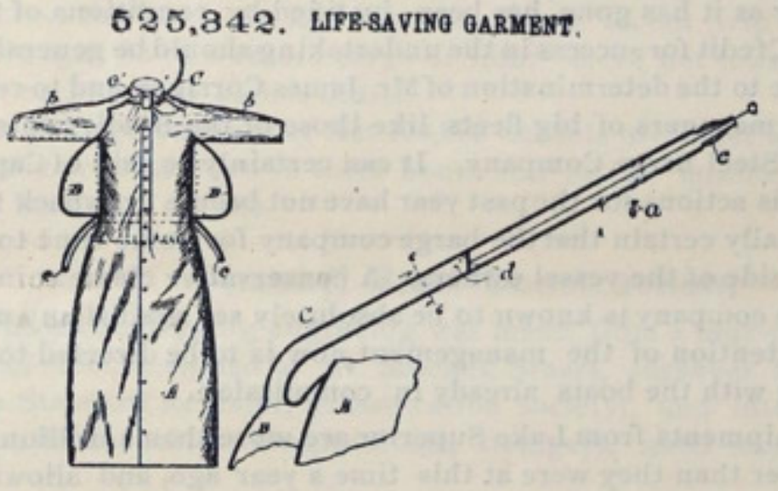
Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

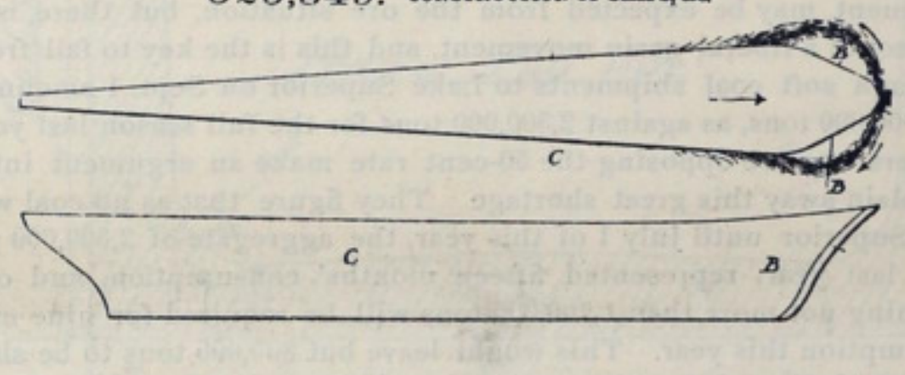
525,342. LIFE SAVING GARMENT. Oscar Hanson, Du Bois, Pa Filed April 23, 1894. Serial No. 508,746.

Claim.—In a life saving garment the combination of the cloak or coat A, having the collar c', to fit around the neck of the wearer, with the girdle or piece B, secured at its upper portion under the arms and to the upper part of the cloak, and at its lower portion to about the point of the waist of the cloak; and the flexible tube C, secured to and opening within the cavity between the girdle or piece B, and the cloak, and having the mouth piece e, inclined valve d, and rod a, said tube being adapted to fold around the neck and under the collar c', whereby it is held when not in use.

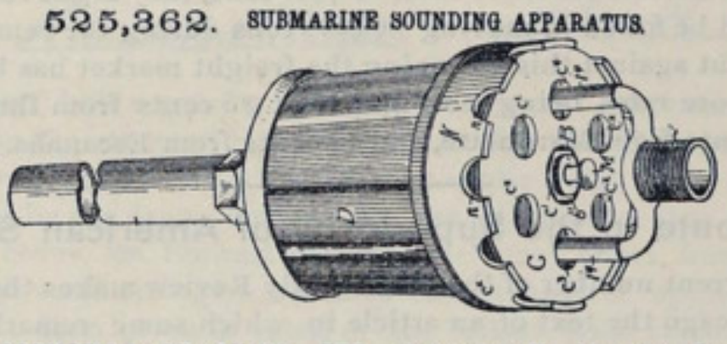
525,342. LIFE-SAVING GARMENT.



525,349. CONSTRUCTION OF SHIPS, &c.



525,362. SUBMARINE SOUNDING APPARATUS.



525,349. CONSTRUCTION OF SHIPS, ETC. Lysander M. Lincoln, Sacramento, Cal. Filed July 8, 1893. Serial No. 479,877.

Claim.—First, a vessel having a laterally extended cut-water brought to a point at the extreme front and sloping rearward and outward therefrom, upon both sides of a central line, and forming a more abrupt angle with the line of movement than do the bows. Second, a vessel having a laterally extended cut-water forming a more abrupt angle with the line of movement than do the bows, the vessel being tapered toward the stern from a point immediately abaft the bows.

525,362. SUBMARINE SOUNDING APPARATUS. Willis M. Prather, Kan as City, Mo. Filed Oct. 27, 1893. Serial No. 489,253.

Claim.—First a sounding apparatus consisting of a liquid receiver, having valvular openings and valve opening stems extending outwardly from said receiver for opening said valves to said openings, and admitting the liquid, and an air vent in said receiver having a needle valve seat and a needle valve in said seat extending outwardly from the receiver regulating the escape of the air from the receiver. Second, in an apparatus, etc., consisting of a liquid receiver, and a spindle within and connected with the top of said receiver, and a removable bottom to said receiver, having valvular openings, and a valve to said openings, having an externally threaded collar, and a sliding collar keyed on said spindle having an internally threaded flanged collar, adapted to fit over the collar on said valve, and a spring on said collar bearing upon the flanged collar at one end, and the inner side of the top of said receiver at the other, and means for communicating a partial rotation to said bottom of the receiver.

FOUR steel engravings of U. S. war ships and a color plate of the steel steamer Gratwick will be forwarded by MARINE REVIEW, 516 Perry-Payne Bldg., Cleveland, O., to any address on receipt of $1.

Vessel Owners' Victory in Coal—Lake Freights.

All eyes have been on Cleveland for three weeks past, on account of the firm stand taken by leading vessel owners against carrying any soft coal to Lake Superior at less than 50 cents, and the victory won early this week, through shippers paying that rate on about twenty boats, has been the cause of a great deal of good feeling among owners in all parts of the lakes. The Cleveland owners had assistance of almost a unanimous kind from the vessel interests generally, but coal shippers who are fortified by large contracts still refuse to pay the fixed rate, and with the pressure of hundreds of loaded cars relieved by the charters made early this week it will be necessary to continue the policy of daily meetings in Cleveland, and to exercise the same care that has characterized the proceedings of the past three weeks, if the rate is to be maintained. This is the first instance in the history of lake business of a rate being established through vessel owners combining, and it is a satisfaction to note that the combination, as far as it has gone, has been justified by conditions of the freight market. Credit for success in the undertaking should be general, but it was largely due to the determination of Mr. James Corrigan and to ready assistance from managers of big fleets like those of the Bradley estate and the American Steel Barge Company. It can certainly be said of Capt. McDougall that his actions for the past year have not been a drawback to freights, as it is equally certain that the barge company for some time to come will be on the side of the vessel owners. A conservative element in the directory of the company is known to be absolutely set against any more boats, and the attention of the management now is to be directed toward making money with the boats already in commission.

Ore shipments from Lake Superior are more than a million and a half tons greater than they were at this time a year ago, and allowing for the shortage in shipments from Lake Michigan, the entire movement is full 600,000 tons greater than it was at this time a year ago, so that it can not be said, notwithstanding the advancing ore freights, that any great improvement may be expected from the ore situation, but there is every prospect of a liberal grain movement, and this is the key to fall freights. Although soft coal shipments to Lake Superior on Sept. 1 amounted to only 900,000 tons, as against 2,500,000 tons for the full season last year, the shippers who are opposing the 50-cent rate make an argument intended to explain away this great shortage. They figure that as no coal went to Lake Superior until July 1 of this year, the aggregate of 2,500,000 put up there last year, represented fifteen months' consumption, and on this reasoning not more than 1,700,000 tons will be required for nine months' consumption this year. This would leave but 800,000 tons to be shipped, they say, during September, October and November. As the shipments for August amounted to more than 600,000 tons, they argue that little difficulty should be found in moving 800,000 tons during the remaining three months. But against this reasoning the freight market has been steadily advancing, ore rates being now quoted at 85 cents from the head of the lakes, 70 cents from Marquette, and 45 cents from Escanaba.

Tribute to the Superiority of American Ships.

The current number of the Fortnightly Review makes the visit of the cruiser Chicago the text of an article in which some remarkable admissions are found as to the superiority of American over English war vessels. The author warns his countrymen to open their eyes to facts betimes, lest they be again surprised and humiliated, as they were by the outcome of the naval engagements in the war of 1812. The article deals only with such modern vessels as would be expected to render important service in maritime warfare. That is to say, it confines itself to the consideration of the steel or iron vessels which have been laid down or radically rebuilt since 1880. Forty of these are named and described, and the results of the preliminary examination are summed up in the statement that the United States now has, built or building, a naval force comprising 58 modern vessels, possessing an aggregate of 183,051 tons, and carrying 1,034 guns and 174 torpedo tubes or ejectors. This is pronounced a sea force superior, upon the whole, to any other in existence, the fleets of Great Britain, France, Italy, Russia, and perhaps Germany excepted. It is not, however, for its size but for its efficiency, its quality, that the American navy is held up to admiration. Most of our vessels, the Fortnightly Review believes, have not their betters of similar class in the fleet of any European country, but to some of them it directs particular attention as proofs of the fact that, vessel for vessel, the United States stands ahead of the rest of the world today.

Englishmen are now advised to go to school to the Americans with reference to gunning battle ships, and also to gunning cruisers, as the author says the United States is as superior to England in the quality of her cruisers as in that of her battle ships. By way of proof, in one instance, the armored cruiser New York is compared with the Blenheim, which is about 500 tons heavier, and practically, though not nominally, an armored cruiser also. The bow and stern fire—most important factors in the efficiency of cruisers—are immensely heavier in the case of the New York. That ship can bring to bear upon a point directly ahead sixteen guns, developing an aggregate muzzle energy of 38,185 foot tons, whereas the English cruisers can concentrate on a similar point only seven guns, exhibiting a total muzzle energy of but 16,144 foot tons. Equally unfavorable to the Blenheim is the comparison of the stern fire of the two vessels. For broadside fire the New York has available nineteen guns, with an aggregate muzzle energy of 46,223 foot tons, against fifteen guns, possessing a total muzzle energy of no more than 34,745 foot tons on the part of the Blenheim. The Review asserts that similar results would follow a detailed comparison of the American Columbia with the English Gibraltar; or of our Olympia with the English Talbot, and so on. The conclusion is that, if we match craft for craft of approximately equal displacement, size and class, the American cruisers, considered as all-around fighting and scouting machines, are better than the English by not less than from 15 to 40 per cent.

A Poor Argument.

Editor MARINE REVIEW: I received a copy of your REVIEW for August 9 and also for August 30 with marked articles relating to me, and I note your remarks about professional methods and hot blast. Please to note that there are various systems of hot blast, viz.: Neilson's, Siemens', Cowper's, Blanchard's, Howden's, Wylie's, Main's and Ellis' (suction), so that there is a choice. I suppose that if I had advertised in the REVIEW the notice might have been different. I am sorry to say that I never derived one cent of benefit to my knowledge from advertising, so that is my reason for not putting an "ad" in any paper.

HOBOKEN, N. J., Sept. 11, 1894. T. MAIN.

[Comment regarding the foregoing communication is unnecessary. We are willing that readers of the REVIEW shall pass judgement as to the question of advertising patronage controlling editorial matters. Thousands of business communications seeking advertising have gone out of the office of the REVIEW, but we had no knowledge of any of them ever having been sent to Mr. T. Main, or that he ever had anything to advertise.—ED.]

Pleased with the Cleveland Office.

Commander Charles D. Sigsbee, U. S. N., chief hydrographer, Washington, D. C., seems to be very well pleased with matters pertaining to the establishment of the branch hydrographic office in Cleveland. In writing the REVIEW regarding another matter he says:

"The new branch office now being installed in the Arcade, Cleveland, by Lieut. Blow, U. S. N, seems to be progressing rapidly toward completion. It will be a thoroughly well equipped office and in its organization will have the advantage derived from all previous experience. There are no branch offices on the seaboard, either Atlantic or Pacific, with the possible exception of New York, that is so well fitted for business as those in Chicago and Cleveland. The interest shown in the creation of the new office at Cleveland by the chamber of commerce, especially by Mr. Ryerson Ritchie, its secretary, is very gratifying to this office. The Arcade is giving us fine quarters, rent free, just as the Masonic Temple did in Chicago and is erecting a time ball, the same as was done in Chicago.

Gen. Poe and his associates on the board of army engineers appointed to prepare an estimate of the cost of deepening the harbors of Duluth and Superior to 20 feet will find little difficulty in going as far as recommending immediate appropriations for such a work, and the two cities at the head of the lakes will undoubtedly be the first to secure harbor improvements on a large scale suited to the 20-foot channel. But with the other matter entrusted to a board, of which Gen. Poe is also the senior member, that of making surveys for a canal connecting Lake Erie and the Ohio river, it is not probable that the engineers will go very far in making recommendations in addition to their survey report. It is ridiculous to consider that government funds should be expended and engineers employed on such a scheme.

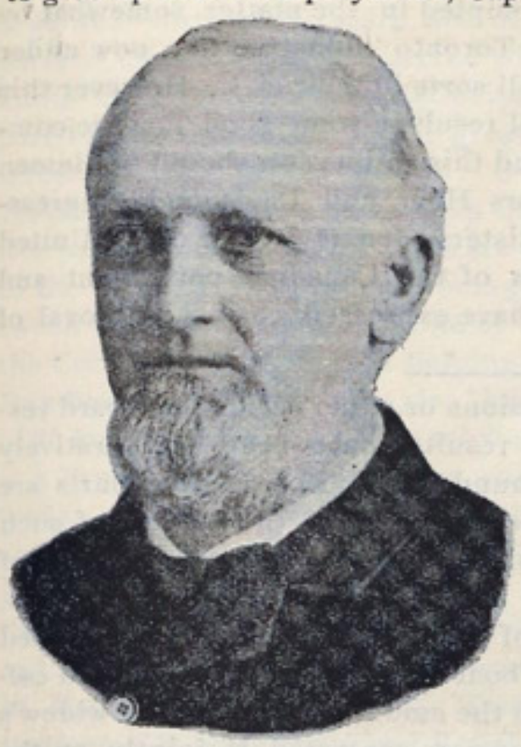
A steel plate 450 inches long, 130 inches wide and 1¼ inches thick, was rolled at Chester, Pa., a few days ago. This plate is for one of the new American Line ships, and is thought to be the largest ever rolled in the world. When sheared and finished, it will be 327 inches long, 120 inches wide and 1¼ inches thick.

The current issue of the Canadian Manufacturer, Toronto, contains reproductions entire from official documents of both the new Canadian tariff, which was ratified July 23, 1894, and the new United States tariff, which became law and went into force on August 28, 1894.

AN EXCELLENT LIBRARY FOR A MARINE ENGINEER, CHEAP—KEY TO ENGINEERING; WHAT AN ENGINEER SHOULD KNOW ABOUT ELECTRICITY; ENGINEERS' CATECHISM. ANY ONE OF THESE ARE WORTH A DOLLAR, BUT ALL THREE CAN BE HAD FOR $1. SEND TO THE MARINE REVIEW, 516 PERRY-PAYNE BUILDING, CLEVELAND, O. MONEY REFUNDED IF NOT SATISFACTORY.

Capt. Joseph C. Perrett.

After having acquired sufficient means, through sobriety and industry, to give up active employment, Capt. Joseph C. Perrett, who was manager of the Marinette Barge Line during its entire existence, died at his home in Chicago, Wednesday. The Marinette Barge Line was organized twenty-one years ago, and during its existence freighted two billion feet of lumber to Chicago. Just as the line had obtained its majority it ceased to exist. The season of 1893 was its last. Its business was closed up and the barges sold, but Capt. Perrett lived only a few months to enjoy the fruits of a long and active business life.



CAPT. JOSEPH C PERRETT.

Capt. Joseph C. Perrett was born in Somersetshire, England, in 1833, and began his career on the great lakes in 1852. It was regarded as a good-sized vessel in those days that could carry 150,000 feet of lumber. In 1859, he took the first paving material to Chicago, and he also carried to Chicago the timber for the light-house pier. Twenty-five foot cedar poles which were taken from the Menominee district, paid a freight rate of 50 cents at that time each as against about 10 cents at present. The only saw mill at Menominee in 1853 was one which was propelled by water power and which cut about 20,000 feet a day, and there in common with Manistee and other points, the lumber was rafted out to where the vessels lay, and was then loaded.

Case of the F. & P. M. No. 2.

Arguments were submitted in the United States district court, Detroit, before Judge Swan, Tuesday and Wednesday of this week, on the motion of the F. & P. M. Railway Co. for a new trial in the case of the F. & P. M. steamer No. 2. The steamer ran on Long point, Lake Erie, in the fall of 1892 in a snow storm. The manager of railway company got into a controversy with the underwriters regarding a settlement of particulars and general average, and the result was a suit against half a dozen insurance companies for $17,000 or $18,000. On trial in April last the railway company put in its testimony, after which, on motion of the insurance companies, Judge Swan instructed a jury to render a verdict for the defendants. The reason for this was that the testimony showed that the steamer was running down the lake without a lookout stationed forward, and that when it was found that she was close to a lee shore with the land on the port side, they put the helm hard-a-starboard and went ahead full speed to bring her around, and in doing this the steamer stranded. On trial, the reason given for starboarding instead of porting in such a situation was that the rudder had previously become twisted, and in putting an offset in the tiller it had not been entirely corrected, and the steamer would swing more rapidly on the starboard helm, because the rudder did not go fully over when the helm went hard aport. The insurance policy accepted all losses not caused by departure from ordinary care in navigation or any unseaworthiness. The underwriters contended a want of ordinary care in running without a lookout in a snow storm and in turning into the land under the circumstances, as the steamer had done; or, they held further, if the defect in the steering apparatus was sufficient to require her to turn in that way, in preference to turning away from land, that was substantially unseaworthiness, which the owners had abundant opportunity to remedy before the trip on which the boat was stranded.

The railway company now presents affidavits in regard to weather, condition of steering gear, etc., attempting to show, among other things, that absence of a lookout was excusable, as it was so thick that he could not have seen anything if had been there.

W. H. Canfield of Detroit and Harvey D. Goulder of Cleveland represented the underwriters in this case. The railway company is represented by Brennan & Donnely of Detroit and George Clinton of Bnffalo, together with E. N. Saunders of Saginaw and Benton Hanchett, the regular counsel of the company.

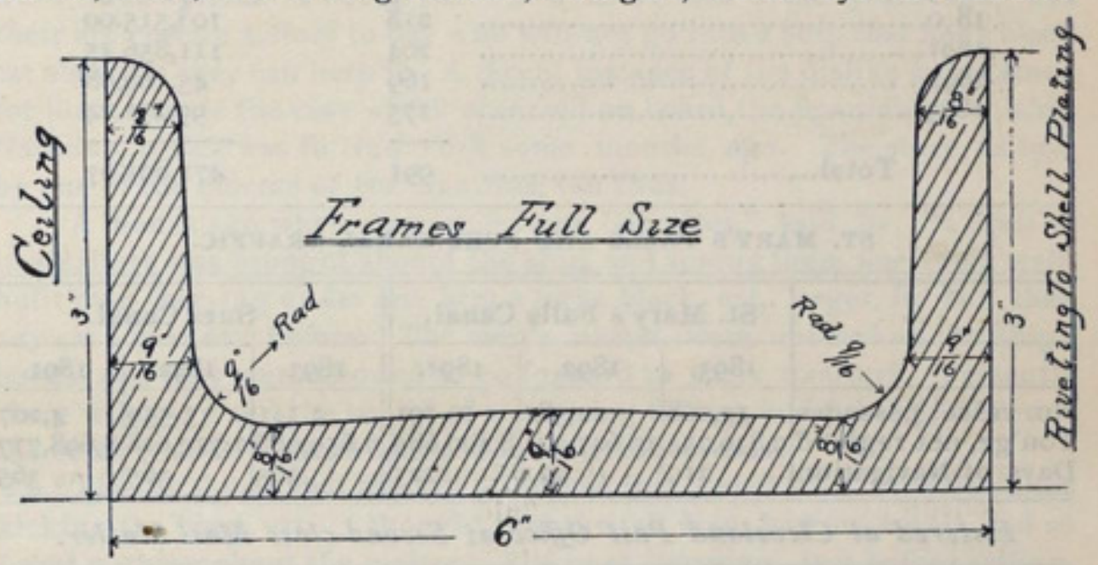
Four Records Broken—5,117 Tons In a Lake Steamer.

In all four records were broken in the remarkable trip just made by the steamer S. S. Curry. First was her coal cargo of 4,535 net tons, Ashtabula to Gladstone, carried on a draught of 16 feet 9 inches. This load was taken out of the ship at Gladstone in 17½ hours, which is a new record in unloading large cargoes. Then came the big load of ore, the largest cargo of any kind ever put into a lake ship, 4,569 gross or 5,117 net tons, taken on at Escanaba, on a draught of 17 feet 10 inches, with nearly 200 tons of fuel aboard additional. And lastly, in unloading this big cargo in 10½ hours, another record for fast work is established at South Chicago. It will undoubtedly be some time before the Curry's performance on this trip is equaled, but now that a trial of her capacity has been made, it is plain that the cargoes might have been even greater than they were had conditions been fully understood. The Curry was built by F. W. Wheeler & Co. of West Bay City, and is owned by the Hawgood and Avery Transit Company of Cleveland. She is 378½ feet over all, 360 feet keel, 45 feet moulded beam and 26 feet deep. In the matter of speed of lake freight boats a record is given to the steel steamer Centurion, for a trip made some time ago between Buffalo and Duluth. Careful inquiry shows that the Centurion, which was also built by F. W. Wheeler & Co., and is owned by the Hopkins Transportation Company of St. Clair, Mich., made the run light, from Buffalo to Duluth, dock to dock, in 67 hours and 50 minutes. As the distance is 997 miles, the average speed, including all checks in the rivers, is 14 7 miles an hour. The Centurion has been credited for some time past with having delivered at Buffalo the largest cargo of corn ever carried on the lakes—147,812 bushels. On a recent trip the Centurion also brought down a record cargo of flour—3,640 net tons from Lake Superior on 14 feet 10 inches draft.

In Chicago on Sunday last 100,000 bushels of wheat was loaded into the steamer John Owen in three hours and fifteen minutes, or at the rate of 500 bushels a minute.

Channel Steel Construction.

The accompanying engraving was made from a blue-print section of channel steel, designed by Mr. Sinclair Stuart, surveyor for the United States Standard Register, (classification society), and intended for ships' frames, floors, bottom longitudinals, stringers, water-ways and fenders.



Maximum Weight 13 lbs To 26 lbs Per Foot

Mr. Stuart holds patents on a form of channel steel construction applied in part to the steamer Kearsarge, built by the Chicago Ship Building Company recently, and which is to be applied also to the steel barges being built by the same company for the Minnesota Iron Company. The patents cover, Mr. Stewart says, channel steel floors, frames, deck beams, water-ways and stringers, and also ballast tanks as applied to the Kearsarge. A description in detail of the ballast tank construction, which it is thought is especially suited to lake boats, may be obtained later.

Weather Bureau Signals.

There seems to be an erroneous impression among lake captains that the weather bureau has discontinued all wind signals. This is not the case by any means. It is only the cautionary signal that has been disconued, and the use of the red pennant signifies a moderate storm, or a storm elsewhere on the lakes, full information regarding which may be had at the office where the signal is displayed. The storm signals, which indicate severe storms and by their arrangement show from which direction the wind is expected to come, are still displayed the same as for a number of years past. The time of year is approaching when greater attention will be given to these signals, and it is unfortunate that an erroneous idea has gotten abroad, especially as the weather bureau has given no occasion for it.

A strange combination of Friday superstition and the fatal thirteen is reported in connection with the loss of the lumber steamer Burlington in the Detroit river this spring. The captain began preparations in Bay City for his first trip on Friday, the 13th of the month, and when called to account by the owner for so doing remarked that the boat could have no worse luck than had attended her for some time previous. He suggested that his action might be the cause of a change for the better, but the boat took fire before she got out of the rivers and was about thirteen hours in burning up. Then followed a refusal of the underwriters to pay insurance, on the claim that the boat was covered only by a winter fire policy.

Subscribers will avoid danger of mistakes by giving the old as well as the new address when a change is desired.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O.

SUBSCRIPTION—$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,761 vessels, of 1,261,067.22 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1893, was 318 and their aggregate gross tonnage 525,778.57; in all other parts of the country the number of this class of vessels was, on the same date, 211 and their gross tonnage 314,016.65. The classification of the entire lake fleet on June 30, 1893, was as follows:

Class.	Number.	Gross Tonnage.
Steam vessels	1,731	828,702.29
Sailing vessels	1,205	317,789.37
Canal boats	743	76,843.57
Barges	82	37,731.99
Total	3,761	1,261,067.22

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	Number.	Net Tonnage.
1889	225	107,080.30
18,0	218	108,515.00
1891	204	111,856 45
1892	169	45,168.98
1893	175	99,271.24
Total	991	471,891.97

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1893.	1892.	1891.	1893.	1892.	1891.
No. vessel passages	12,008	12,580	10,191	3,341	3,559	4,207
Ton'ge, net regist'd	9,849,754	10,647,203	8,400,685	7,659,068	7,712,028	8,698,777
Days of Navigation	219	223	225	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

THE Marine Journal of New York takes the liberty of attempting to correct the statement that the Cramps hope to have in the St. Louis, the first of the American Line ships to be launched next month, the fastest merchant vessel afloat. The journal would have it understood that the new American liners were simply ordered as mates for the Paris and New York; that they will be about the same size and have exactly the same horse power, and that it has never been the intention of the owners or builders to attain such speed as the great Cunarders Campania and Lucania have developed. All of this would sound well enough if it were given out as a conservative statement—a sort of reserve announcement—from the Cramps, or the principals of the International company, who by the way are very sensible in saying nothing about their expectations. But it is plain to be understood, nevertheless, that through applying greater power with forced draft to finer-lined ships than the Paris and New York, and with the greatest care as to every detail, the Philadelphia builders, spurred on by great success in the Columbia and Minneapolis, not only hope but confidently expect to beat the Campania and Lucania. Of course the statement about the new ships being designed for exactly the same horse power as the Paris and New York is incorrect.

How forcibly the great capacity of the lake fleet of ships is shown in the St. Mary's Falls canal traffic reports furnished by the officers of the war department! The freight traffic of the canal up to Sept. 1 was above seven million tons. It was nearly six hundred thousand tons greater than on Sept. 1 last year, and there is no doubt now of the record of eleven million tons, made for the season of 1892, being surpassed during the present season. The great increase in the number, capacity and speed of lake ships is, of course, almost entirely responsible for the low range of freights that has prevailed, but there are few who anticipated, even as late as the opening of the present season, this great increase in Lake Superior business, and none who would have credited the lake fleet with sufficient capacity to care for it at the low rates of freight that prevailed up to a few weeks ago. But the freight to be moved has increased in proportion to the big gains in former years, and it has been cared for with a large portion of the ships laid up during a part of the season. The customary increase in general business for another year would result in fairly profitable rates but the conditions will not permit of the construction of much new tonnage if any profit is to be had from vessel property.

IT HAS been hinted that the citizens of Toronto, who have been making great preparations for a waterways convention next week, to discuss and take action on the subject of deepening the Canadian St. Lawrence system of canals to 20 feet, have been prompted in the matter somewhat by a desire to promote the success of the Toronto industrial fair, now under way, by securing large gatherings of all sorts in their city. However this may be, the waterways convention will result in some good for the commercial interests of both countries, and this intimation should not lessen the attendance. United States Senators Hoar and Davis and Congressman Henderson, several Canadian ministers, Gen. O. M. Poe of the United States engineer corps, many members of the Canadian parliament and eminent engineers in both countries have expressed cordial approval of the convention.

DAMAGE suits brought after collisions or other accidents aboard vessels, from which injury or loss of life results, have been comparatively rare of late years, but as it has been found that United States courts are disposed to grant claims where negligence is proven, the number of such cases is increasing. In New York, a short time ago, Judge Brown, one of the most competent district judges in this country in admiralty matters, passed upon a case in which a widow of a tug boat fireman, who jumped overboard and was drowned when the boat on which he was engaged collided with another, sought damages to the amount of $5,000. The widow's claim was against both boats and the owners contested it jointly on the ground that the fireman's death was due to his own rashness. The court decided that the collision was the result of negligence and awarded the amount asked for in the suit.

EIGHT thousand seven hundred passengers were taken to and from Lake Superior on the regular passenger ships during the month of August. The number is three thousand greater than in August, 1893. Of course these are all tourists. The excursion business and the passenger traffic of lines in other parts of the lakes that compete with the railways would make up figures overwhelmingly greater than those noted. But the Lake Superior business shows that a few more North Wests would be an incentive to passenger traffic in general. The increase of three thousand passengers in a single month is not to be credited to the big ship alone.

THIS has been a season remarkably free from accidents. Probably never before has the month of September been reached with less loss of life or property. Such collisions as have occurred have not been attended by great loss, and the insurance companies have have had none of the usual big bills to pay on account of steel ships coming in contact with rocky bottoms. But the fall period when accidents are most numerous is at hand and probably it is a little early to refer to this subject.

UPON the return of Secretary Herbert of the navy from his inspection trip, advertisements will be issued for the three torpedo boats. As it is understood that the navy department would be pleased to have any of the lake ship building concerns undertake the building of these vessels, it would seem that some effort should be made to secure the contract.

Passing Signals.

Inspector General Dumont, of the steamboat inspection service, has called the attention of supervising inspectors on the lakes to the communication of Attorney A. E. Cooley of Bay City, relative to neglect of the law requiring the use of passing signals. The inspector general's instructions on the subject follow:

To the supervising inspectors of the fifth, eighth, and ninth districts—Gentlemen: There is published in the MARINE REVIEW of Aug. 30 a communication from a gentleman of Bay City, Mich., whose responsibility the REVIEW editorially vouches for, charging gross neglect on the part of many of the masters and pilots of lake steamers to observe the rules of the board of supervising inspectors for steamers meeting and passing, authorized by section 4,412, revised statutes.

The charge is made in the article referred to, that fully 50 per cent. of the steamers met by the steamer upon which the author of the charges was making a passage through Lakes Huron, Michigan, Superior and connecting waters, and return, failed to answer the signals of that steamer. This charge is entitled to your most serious consideration, as it reflects in a measure upon the general efficiency of the officers of the steamboat inspection service. I have, therefore, to request that you will call the attention of the local boards in your districts to the charge referred to, with instructions to investigate every such charge that may come under their official notice, and, upon lawful conviction of the offenders, extend to them the full penalties prescribed therefor by law. In conclusion, will state it to be my impression and belief that energetic action on the part of the officers of this service will materially lessen, if not entirely prevent, such wholesale violation of the rules and regulations as charged in the complaint referred to herein.

Office Steamboat Inspection Service,
Washington, D. C., Sept. 5, 1894.

JAS. A. DUMONT,
Supervising Inspector-Gen.

Speed of Merchant Ships.

The average reader of newspapers who is accustomed to seeing accounts of great speed in vessels of war and transatlantic liners will be somewhat surprised to learn that of 12,907 merchant vessels, owned in all parts of the world and registered with Lloyds, only 304 have a speed of 15 knots and over. An editorial writer in Engineering of London has prepared from the records of the great classification society some very interesting facts on this subject. Over 19 knots there are only forty-five vessels, and with few exceptions these have all been constructed within five years. Over 20 knots there are eighteen vessels, of which four belong to the Belgian government, being paddle steamers for the service between Ostend and Dover. One of them, of 22-knot speed, was built by the Cockerill Company in Belgium, and the others by Messrs. Denny of Dumbarton, Scotland, who also built the two others which have a speed of 21 knots. Two other channel steamers, the Seine and Thames, belong to a French company, and are engaged in the Newhaven and Dieppe trade. They are French built, while another, the Seaford, engaged in the same trade, was built by Messrs. Denny of Dumbarton and is owned in Britain. The other two vessels owned outside of Great Britain are the Paris and New York. The British-owned vessels are the Campania and Lucania, put at 21¾-knot speed, the Majestic and Teutonic, the Isle of Man steamers Prince of Wales and Queen Victoria, the Thames steamers La Marguerite and Royal Sovereign, and the Doublin steamer Ireland. Only the six Atlantic and the Newhaven and Dieppe vessels are screw steamers, the others are paddle steamers. Indeed of the forty-five vessels of 19 knots and over, twenty-two are paddle steamers, sixteen are twin-screw, and only seven single-screw vessels. Only two of the latter have been built within the past five years, so that the twin-screw for high speed vessels has completely superseded the single propeller arrangement. Again, of the forty-five vessels of over 19 knots, only nine have been built outside of Great Britain although twenty are owned by foreign countries. The list given is interesting:

	Owned in Great Britain.	Owned in other countries
Vessels of 20 knots and above	10	8
" 19 " "	15	12
" 18½ " "	4	3
" 18 " "	25	4
" 17½ " "	9	16
" 17 " "	29	5
" 16½ " "	17	4
" 16 " "	30	17
" 15½ " "	12	6
" 15 " "	54	24
	205	99

Thus Great Britaian has more than two high-speed vessels for each owned by a foreign nation. Seven of the twenty over 19 knots belong to Belgium, five to Germany, three to Holland and three to France, the remaining two being the Paris and New York. The French and German vessels are all Atlantic liners, with the exception of the French channel steamers Seine and Paris. Vhe French have not another vessel until the speed of 17½ knots, when they figure for thirteen Atlantic and Oriental vessels, while the Germans have three at that speed. Next to the Paris and New York, the United States has only the Kansas of the Savannah ltne of 17-knot speed. It is, however, right to state that this return takes no cognisance of river or lake steamers in the states, of which there are a large number of high speed, although relatively few, if any, are of 19 knots. In deep sea steamers, therefore, Great Britain holds an exclusive position, but for the Paris and New York, the French Atlantic liner La Touraine of 19-knot and the Hamburg-American Company's three vessels of 19½-knot speed. The North German Lloyd's fastest boats are the Spree and Havel of 19-knot speed. Belgium's fastest screw steamer is of 19 knots also.

Contract for a Submarine Boat.

Bureau chiefs of the navy department are about to pass finally on plans of the Holland type of submarine torpedo boat, and it is more than probable that a boat of this kind will be constructed. Any contract for a submarine boat would be in the nature of an experiment, and as an appropriation for such a boat is available, the department evidently intends to keep in line with the naval authorities of other nations that are making similar experiments. In England it is thought that success with submamarine boats must come through the use of electricity. One of the leading electrical journals of London has the following on the subject:

"All the maritime nations are concerned with, and are studying, through the media of their admiralty officials, the problem of submarine navigation. It is considered that a navy equipped with vessels which can be propelled at any depth beneath the surface of the water will possess enormous powers of offense. France, Germany, Italy, Spain, Great Britain (of course), and even Turkey, are at present engaged with the greatest secrecy in endeavoring to produce a practicable form of submarine torpedo boat; but the problem has hitherto baffled them. It is true that some success attended the famous trials of the Gymnote in Toulon harbor about two years ago, and it is claimed that the French have a boat, the Gustave Zede, which is capable of keeping up a speed of 14 knots for several hours below the surface of the sea; but these boats can hardly be said to have realized all the necessary conditions. The key to the whole problem is in the hands of electrical engineers. Steam can not be employed as a motive agent on account of the absolute impossibility of disposing of the products of combustion. Compressed air gives no better results, the weight of the chambers in which it must be stored proving too great; moreover, to dry the air thoroughly and the expansion of the necessarily enormous amount so lowers the temperature that ice forms in the pipes and renders them useless. Undoubtedly the direction in which progress and indeed success must be looked for is in electricity, more especially in the use of storage batteries. As yet, however, no system of accumulators has been discovered that is perfectly adapted to the needs of submarine navigation. Here, then, is a problem which those who are interested in secondary batteries may study, possibly with profit to themselves. The absolutely essential points are extreme lightness, considerable storage capacity and the absence of noxious gases at the moment of discharge. These must be borne in mind when entering upon a line of investigation. They are difficult points to reconcile among themselves, to say nothing of the conditions; but we venture to think that difficulty need not deter. If discouragement followed upon the recognition of the arduous nature of a problem, how few would ever have been solved by electrical engineers."

A Black Cat Story.

As sailors consider certain animals lucky, they also look upon others as unlucky. Chief among the latter class are black cats. The hatred toward these animals is not so fierce now as it was some years ago, but their are certain sailors to-day who will not go into a ship that has a black cat aboard if they can help it. A recent instance of the dislike entertained for black cats is the case which occurred on board the Spanish schoolship Nautilus, which was in New York some months ago. The story, as told by one of the officers of the Nautilus, ran thus:

"A month ago when we were leaving Gibralter," said he, "a draft of new sailors was brought aboard the ship, and among them was a tall, well-built man carrying under one arm a large black cat, larger, in fact, than any cat I ever saw before. The men's names were entered on the ship's books, and they were allowed to go forward to their quarters. Presently there was a cry and the sound of something falling, and I, being officer of the deck, rushed forward to see what the trouble was.

"There I found that the tall sailor had just knocked a man down for kicking the black cat. I thought that the tall man had done well, and so I said nothing about the matter. The next morning, just before sailing, however, several men came aft and asked that the cat might be put ashore, as they considered it unlucky and did not care to have it aboard. When this request was communicated to the captain he said the men were fools, and that the cat might stay aboard.

"Nothing more was heard until we were about three days at sea, and then the tall man came to the mast and said that his cat could not be found, and he thought that some of the crew had thrown it overboard. There was no way of ascertaining the fact, though, and so the matter was dropped. Five days before we reached this port, however, the captain of the hold, an old gray-haired sailor, full of the traditions of the sea, came to the mast and said that he could not stay in the hold, as there were strange cries and noises behind the barrels and coils of rope. We promised to investigate, and so that day men were put to work and everything was taken from the hold and in one corner sat the black cat, with its eyes showing fiery in the dark. It was thin and had very little life left in it. I stepped toward it when one of our men let out a yell and rushed for the companionway.

"I caught him by the collar, and while trembling and struggling he told me that he had knocked the cat overboard with a handspike the second day out, and he thought that the present cat was a ghost. The cat, after being knocked overboard, evidently caught the ship's side, climbed aboard and ran to hide in the hold. It must have been without food for over two weeks. The sailor who knocked him overboard was so frightened that he had to be put on the sick list for several days.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stock of wheat and corn in store at the principal points of accumulation on the lakes on Sept. 8, 1894:

	Wheat, bu.	Corn, bu.
Chicago	26,037,000	1,457,000
Duluth	2,638,000	.....
Milwaukee	605,000	.....
Detroit	1,610,000	3,000
Toledo	3,251,000	11,000
Buffalo	1,396,000	239,000
Total	35,537,000	1,710,000

At the points named there is a net increase for the week of 431,000 bushels of wheat, and 136,000 bushels of corn.

Around the Lakes.

A crew for Ashtabula's new life-saving station will be formed within a few days.

P. M. Church & Co. of Sault Ste. Marie have prepared for gratuitous distribution a small map of the Hay lake channel.

Breyman Bros. of Toledo, who purchased the tug Marinette from Menominee parties a few days ago, are also figuring on a dredge and other apparatus from the same place.

The new wooden steamer to be built at Collingwood, Ont., for the Great Northern Transportation Company of that place, will be 220 feet keel, 35 feet beam and 14 feet hold.

Robert Logan, shipbuilding expert of Cleveland, has been appointed lake representative of the American Shipmasters' Association, one of the New York classification societies.

Messrs. Harvey D. Goulder, L. E. Holden and Charles E. Wheeler have been selected by the Cleveland chamber of commerce to attend the waterways' convention, to be held next week in Toronto.

Since Capt. Galvin took the office of supervising inspector, the shipbrokerage firm of Galvin, Clark & Co., Buffalo, has been changed to A. Clark & Co., the members being Capt. Alexander Clark and John C. Fitzpatrick.

Efforts of the Cleveland chamber of commerce for some time to come will be directed toward securing internal harbor improvements, through the city government, and to locating and removing incroachments upon dock lines.

Preparations for lighting the Hay lake channel will not be completed until the opening of navigation next season, but it is expected that structures for lights at Pere Marquette, Mich., Kenauwee, Wis., Twin Rivers, Wis., and Fourteen-Mile point, Lake Superior, will be in readiness this fall.

E. J. Henry, who has been the Chicago agent of the Lehigh Valley Transportation Company for two years, has been appointed western freight agent of the Lehigh Valley Railroad, next to New York, the most important agency on that system. He will continue to act as agent of the steamer line also.

Chicago tug owners are again at war, and lower harbor towing rates, as well as longer runs by the tugs into the lake for tows, will please vessel owners. There is little prospect of differences being fixed up for a long time to come, unless through a change of management by the tug companies.

Toledo owners of the steamer G. G. Hadley have brought suit to collect demurrage from the owners of the St. Paul and Western Dock at Duluth, for a delay of twenty days in unloading the steamer Hadley during the recent strike of coal shovelers at the head of the lakes. A claim for $200 a day is made. The suit will probably involve the legal status of the strike.

A cablegram from Bremen announces the safe arrival there Wednesday of Capt. Adolph Freitsche, the Finish sailor who made a trip down the lakes and the canals from Milwaukee to theAtlantic and left NewYork alone, August 15, in the schooner-rigged skiff Nina, so that there was no truth in the report that he was lost. The feat is of a wonderful kind, but that is about all that can be said of it.

Directors of the Detroit and Cleveland Steam Navigation Company tendered a vote of thanks to the owners of the Frank E. Kirby for effective service rendered by that steamer in assisting the City of Cleveland when she stranded on Middle Bass island, Lake Erie, several days ago. They also, in a substantial manner, showed their appreciation of the service by enclosing a $100 check to Capt. Fox, and $50 each to the mate, engineer and clerk of the Kirby.

The famous Viking ship, which attracted so much attention at the World's Columbian Exposition, was allowed to fill and sink in the Chicago river a few days ago. The ship was presented to the Norwegian society of Chicago, and members of that organization are charged with neglect in allowing her to sink. Surely the little ship ought to be worth something to a museum after braving successfully the winds and tempests of the big Atlantic.

The Unique in Service.

The steamer Unique, the small passenger boat which the Messrs. McElroy of St. Clair, Mich., have had built for a fast service on the Detroit and St. Clair rivers, went into commission this week, and it is claimed that she made better than 20 miles an hour on a trial run, but as the boat is fitted with Ward water tube boilers and quadruple expansion engines from the works of the Frontier company, Detroit, it is more than probable that some interesting and reliable reports of her performance will be had shortly, and reference to her speed is reserved on that account. The boilers—there are two of them—are allowed a working steam pressure of 240 pounds and have 50 square feet of grate area and 2,000 square feet of heating surface. The boat and her engines have been described in previous issues of the REVIEW, but some detail given by one of her owners regarding special features in the construction of the wooden hull may prove interesting. The boat is almost V shaped at the bottom, the aim being to locate all machinery below the main deck and put the shaft low down in the water but on a line parallel with the top of the keel. "The keel is 8 by 8 inches. There is a standing keel 8 inches thick at the top and 5 inches thick at the bottom; it is 20 inches deep at the stern and tapers to a point before reaching the bow. The standing keel has an average depth below the bottom of the boat of 12 inches. This keel is intended to add strength to the boat, increase her stability and protect the wheel. The bottom planking for 4 feet on each side of the keel is 4 inches thick, cross bolted to the frames and edge bolted to the keel. From there to the bilge the planking tapers to 3 inches and is 2½ inches thick on the sides. The planks are square fastened. There is a steel cord ½ inch thick by 8 inches wide notched into the frame near the top with four diagonal steel straps at each end running to the keel. While her frames were cut in to admit of the bed-plate of the engine, all these keels and planking are still below it; beneath the plate there is 32 inches of solid oak. In other parts also the hull is solidly fastened.

Babcock and Wilcox Marine Tubulous Boilers.

Messrs. W. D. Hoxie of New York and Charles Wilson of Minneapolis, representatives of the Babcock and Wilcox Company, boiler makers, have just completed a tour of the lakes in the interest of their company. The Babcock and Wilcox Company, which is probably the largest boiler making institution in the country, is now in the market in earnest with a water tube marine boiler, and the object of the trip made by Messrs. Hoxie and Wilson was to make arrangements preliminary to introducing the boiler on the lakes. The fact that such a concern is to push the manufacture and sale of a marine boiler of the tubulous type, is evidence that the future of the boiler business, as regards the supplanting of the Scotch boiler by the tubulous generator, has been given careful attention, and that the kind of a new boiler offered is not to be put on the market without the matter of its advantages pretty well settled. The firm has an order for boilers of 4,000 horse power, to go into one of the fast torpedo boat chasers being built by the Fairfield Ship Building and Engineering Company for the British government, and also for another vessel to be built at Bordeaux.

Capt. H. J. Johnson's Health Resort.

Capt. Henry J. Johnson, who has for years controlled considerable vessel property in Cleveland, some time ago purchased the health resort at Green Springs, O., known as Oak Ridge, and he has been visited during the summer by numerous Cleveland vessel owners and their friends, some of them going only to spend Sunday and others taking advantage of the opportunities offered at the hotel and surrounding grounds for a rest of some length. The spring, with baths, large brick hotel, a beautiful grove and big tract of land, are all owned by Capt. Johnson, who was himself taken with the health producing qualities of the water, but the management of the place is under the direction of Mr. Cobbs, his son-in-law, who is also known to Cleveland people in the lake business. Green Springs, which has been known for a great number of years as a watering place, is about two hours' ride from Cleveland.

It is certainly strange that lake ship builders and owners have given so little attention to the Serve boiler tubes, for which great advantages are claimed among the builders of Great Britain, where some seventy boats, using all kinds of draft, have been fitted with the tubes. This is not said in an advertising sense, as the representative in this country of the owners of patents on the tubes is doing no advertising in the REVIEW. At the works of John Brown & Co., Limited, Sheffield, England, a working plant has been erected where parties interested may observe comparative tests of boilers with and without the tubes. This plant has enabled the English manufacturers to offer guarantees of results under practically all the conditions of draft at present in use.

"ROPER'S LAND AND MARINE ENGINES," BOUND IN MOROCCO WITH FLAP AND POCKET, WILL BE MAILED TO ANY ADDRESS FOR $3.50 SENT TO THE MARINE REVIEW, CLEVELAND, O.

U. S. ENGINEER OFFICE, Burlington, Vt., September 5, 1894.—Sealed proposals in triplicate, for dredging in Great Chazy River, N. Y., will be received here uutil 2 p m., October 5, 1894, and then publicly opened. Full information furnished on application to Smith S. Leach, Capt Engineers. 27

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U. S. ENGINEERS OFFICE, 34 West Congress street, Detroit, Mich., September 12, 1894,—Sealed prposals for furnishing all labor, materials and appliances, and removing shoals of boulders, both bedded and loose, and other material, from vicinity of Ballard's Reef in Detroit river, will be received here until 2 p. m., standard time, October 12, 1894, and then publicly opened. All information furnished on application. O. M. POE, Col., Corps of Engrs.
Oct 4

U. S. ENGINEER OFFICE, Burlington, Vt., September 5, 1894.—Sealed proposals in triplicate, for dredging in Ogdensburg Harbor, N. Y., will be received here until 2 p. m., October 5, 1894, and then publicly opened. Full information furnished on application to Smith S. Leach, Capt. Engineers. 27

U. S. ENGINEER OFFICE, Burlington, Vt., September 5, 1894.—Sealed proposals in triplicate, for rock excavation in Otter Creek, Vt., will be received here until 2 p. m., October 5, 1894, and then publicly opened. Full information furnished on application to Smith S. Leach, Capt. Engineers. 27

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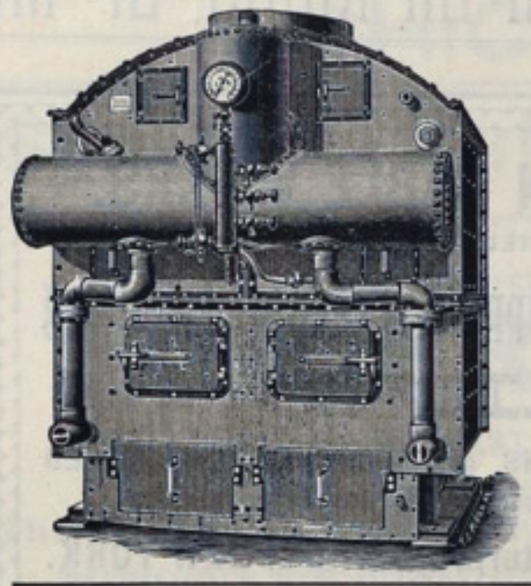

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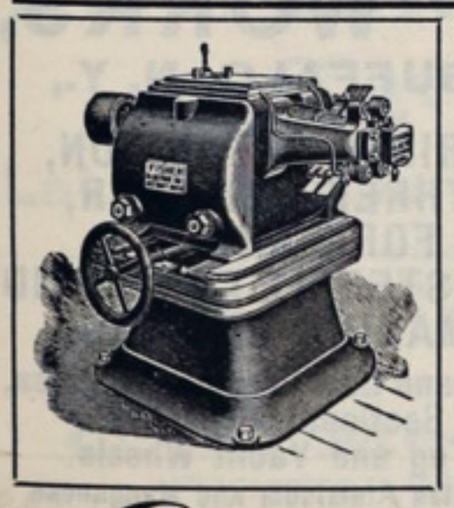

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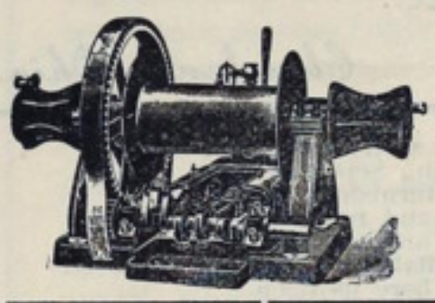

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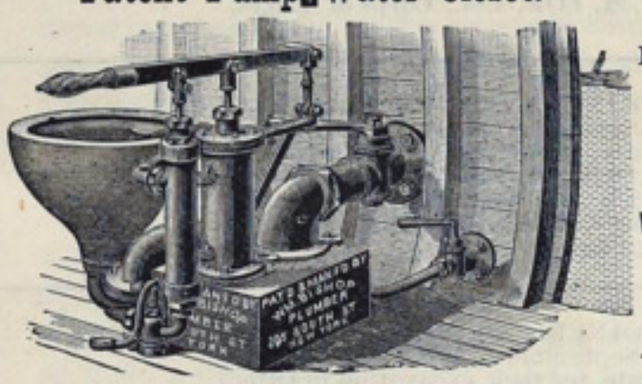

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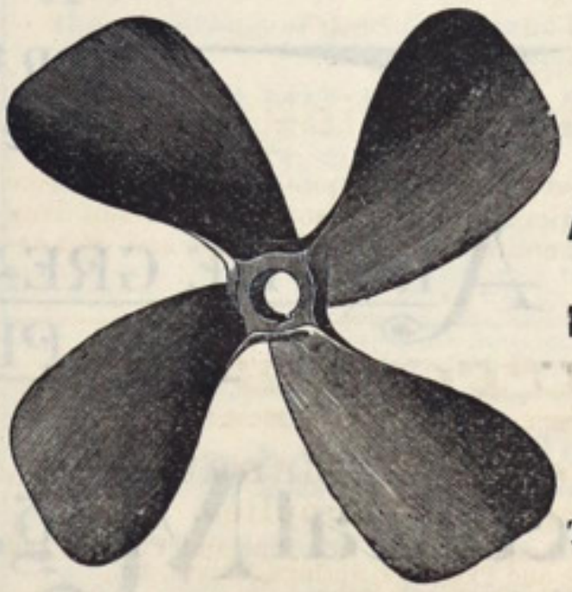

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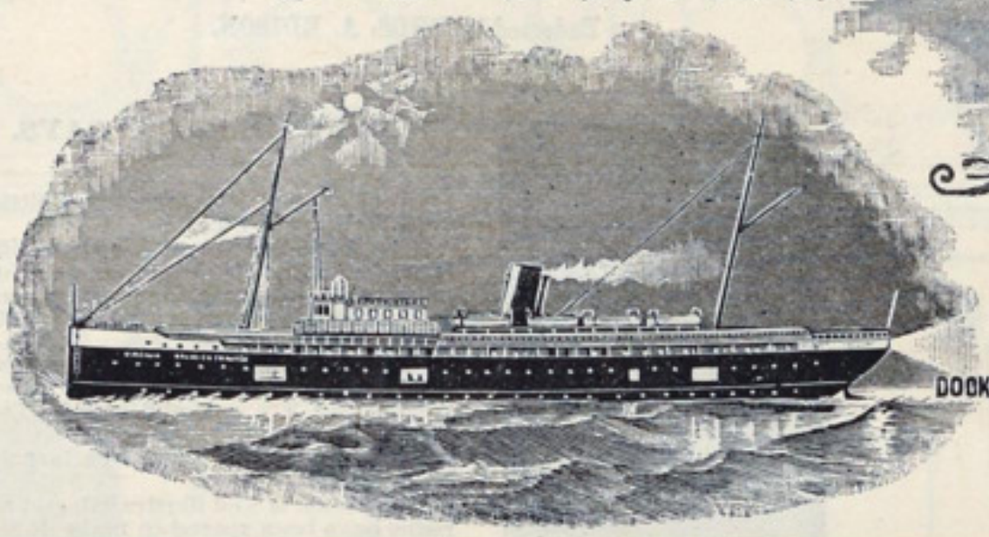

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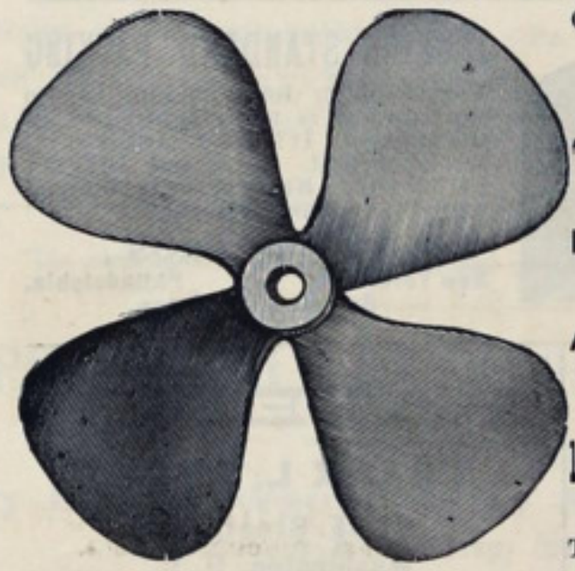

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PATENTS.

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918 F. Steet,
Washington, D. C.

References: American Steel Barge Co.; Capt. Alexander McDougall.

U. S. ENGINEER OFFICE, 34 West Congress St., Detroit, Mich., August 23, 1894. Sealed proposals for furnishing all labor, materials, and appliances, and removing a shoal of bed rock and other material from Sec. 8, Ship Channel between Chicago, Duluth and Buffalo, will be received here until 2 p. m., standard time, September 22, 1894, and then publicly opened. All information furnished on application. O. M. POE.
Sept. 14 Col. Corps of Engineers.

U. S. ENGINEER OFFICE, Burlington, Vt., September 5, 1894.—Sealed proposals in triplicate, for repairs to Burlington Breakwater, Vt., will be received here until 2 p. m., October 5, 1894, and then publicly opened. Full information furnished on application to Smith S. Leach, Capt. Engineers, 27

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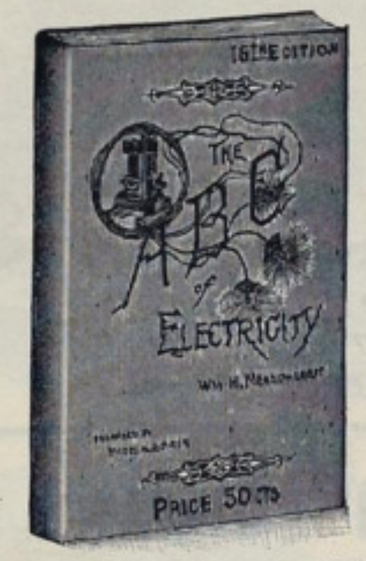

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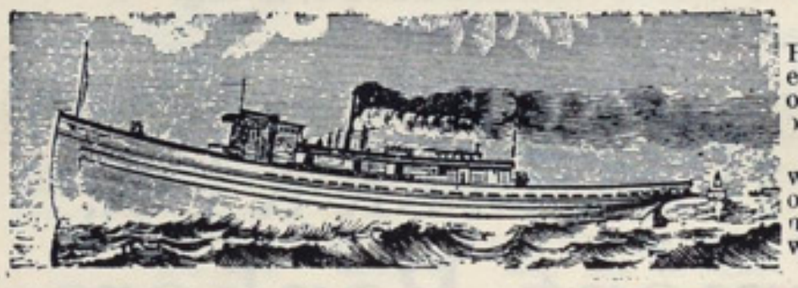

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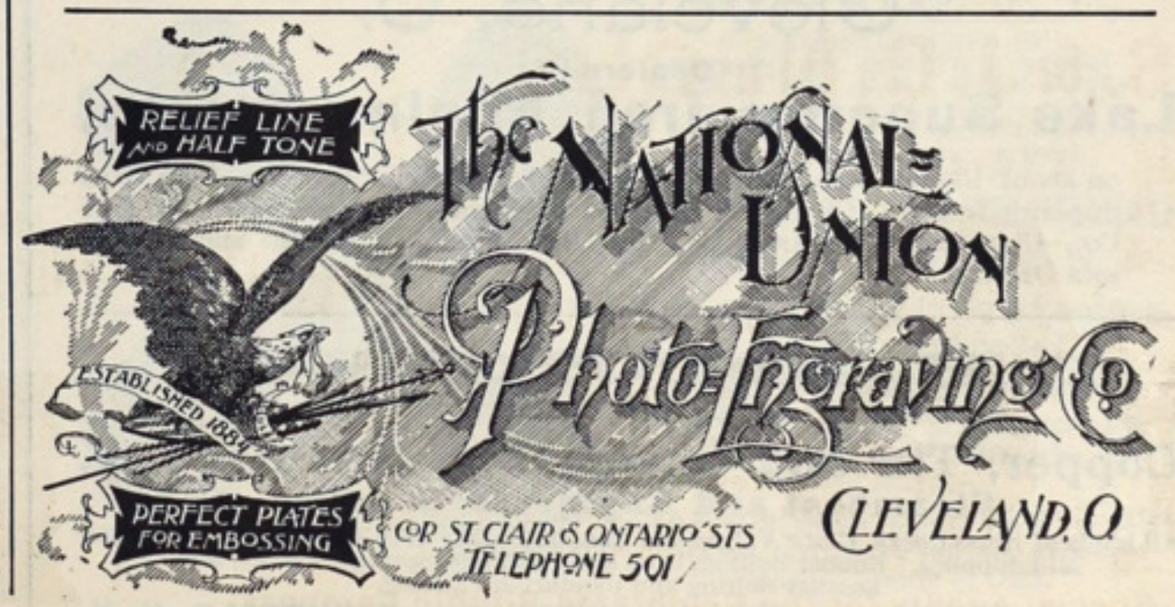

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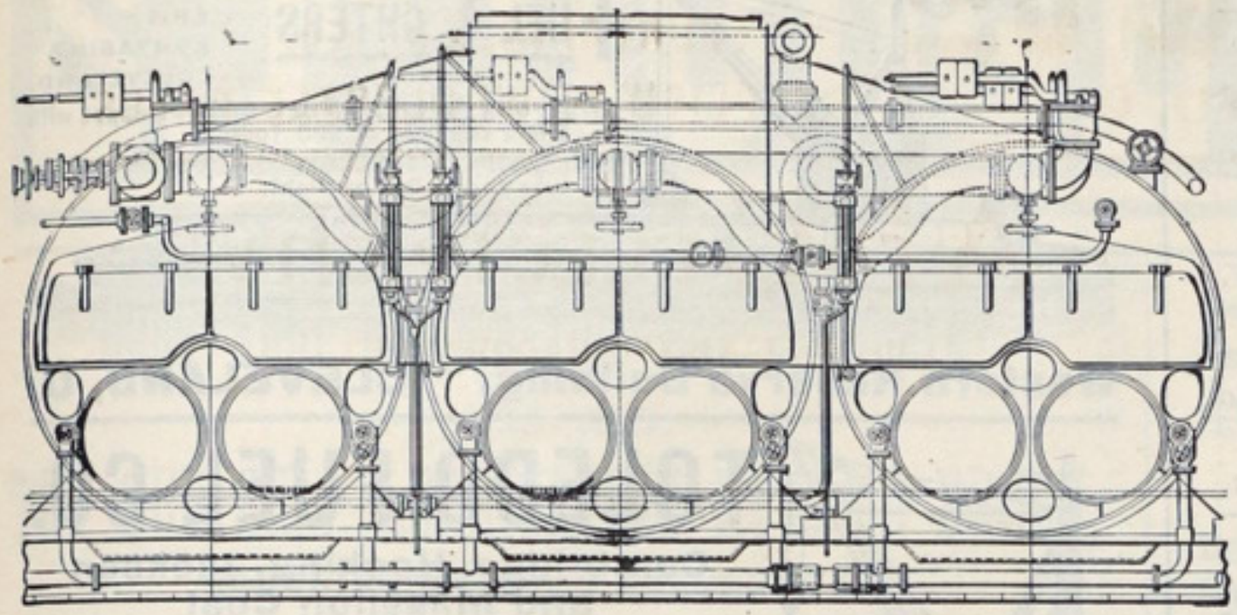

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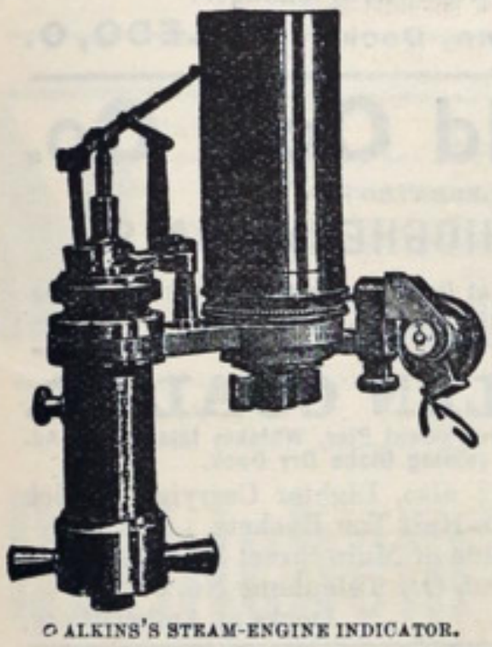

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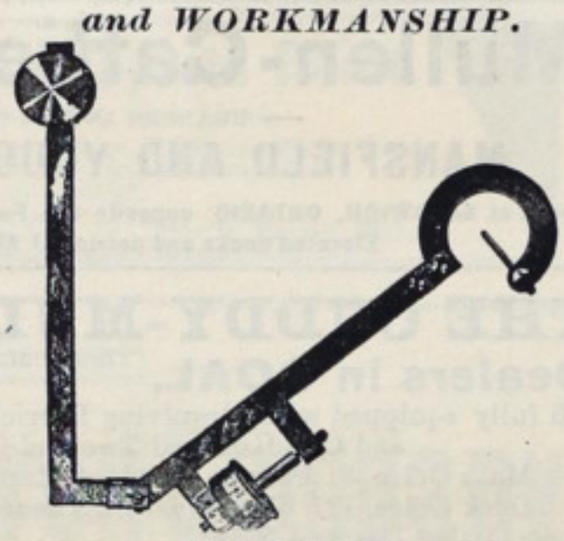

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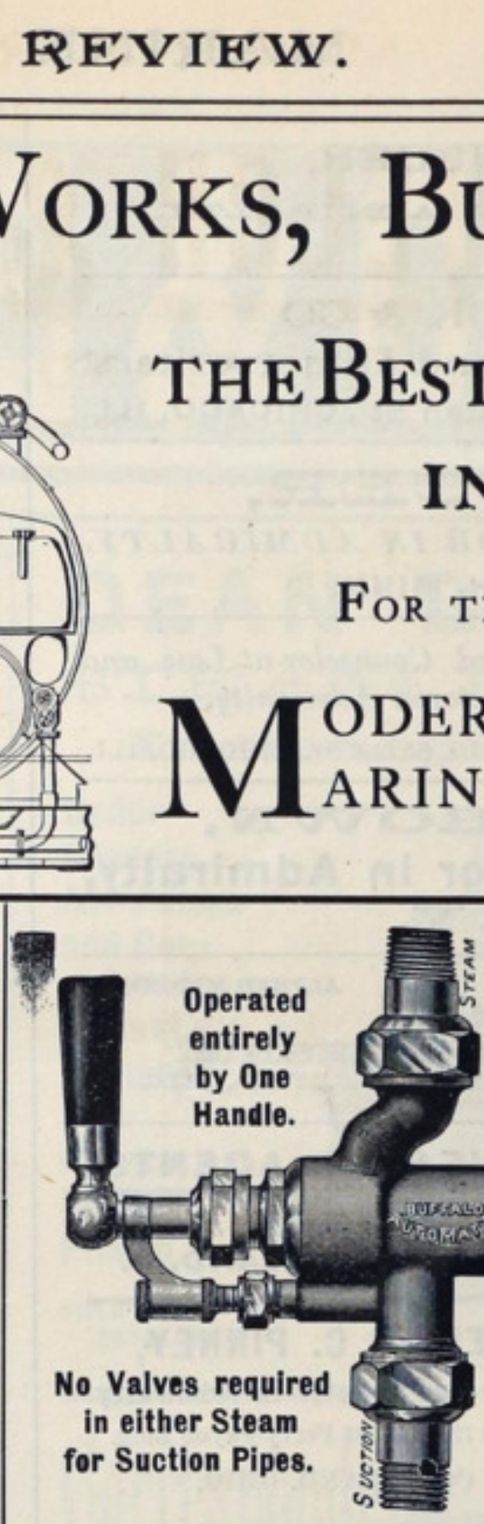

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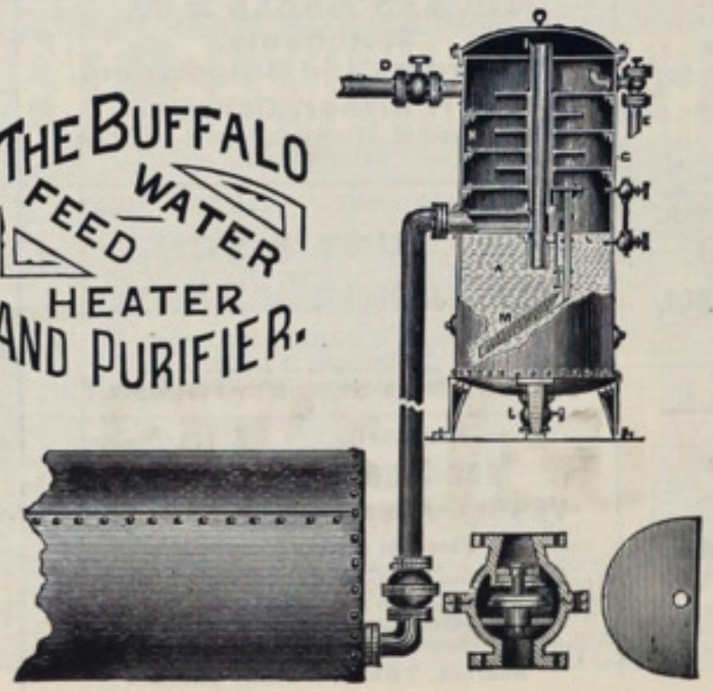

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B.—Boiler.
C.—Feed pipe to boiler.
D.—Steam pipe.
E.—Water supply pipe.
F.—Check valve.
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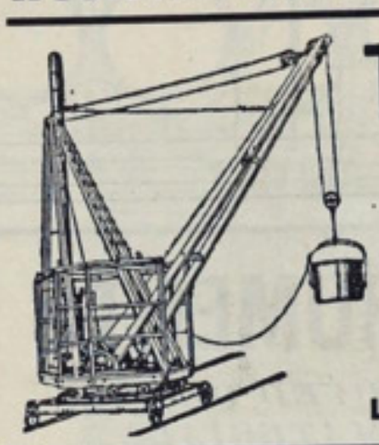

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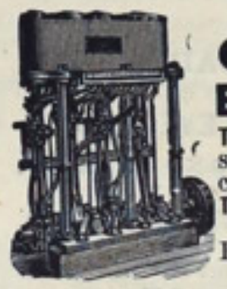

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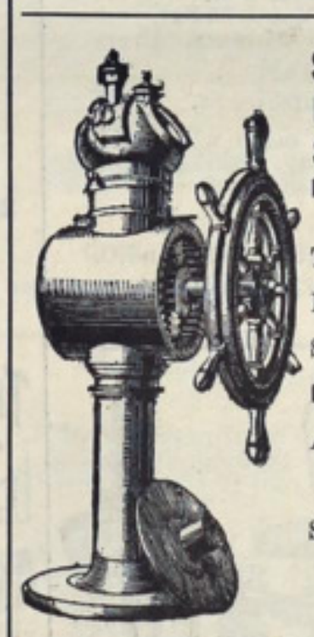

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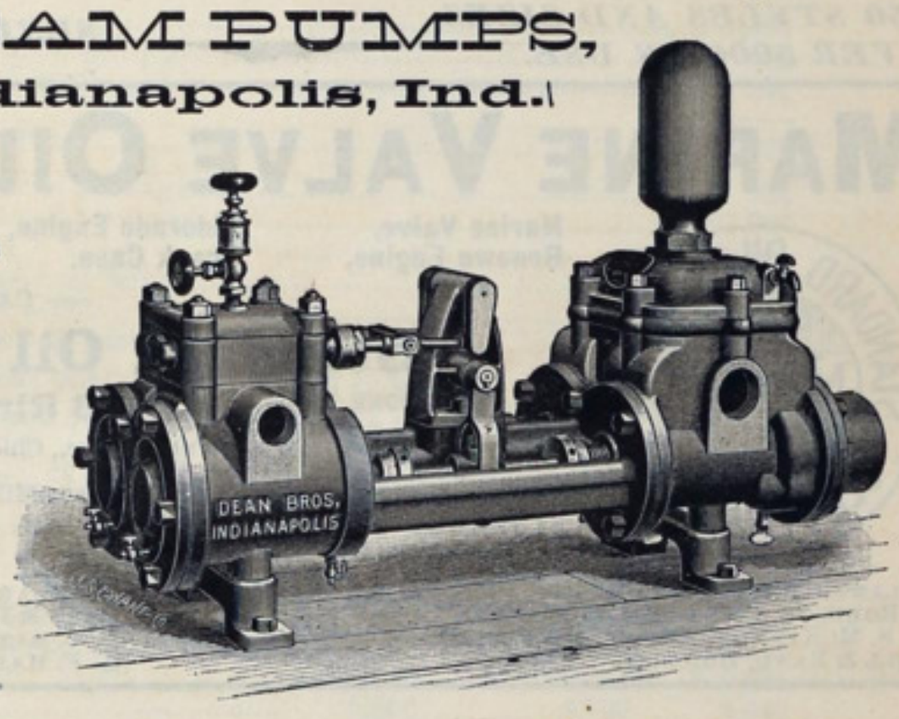

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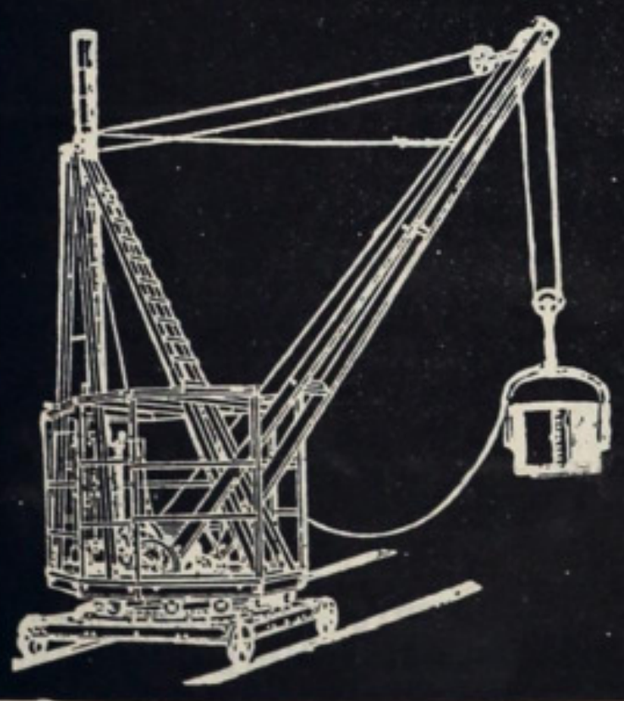

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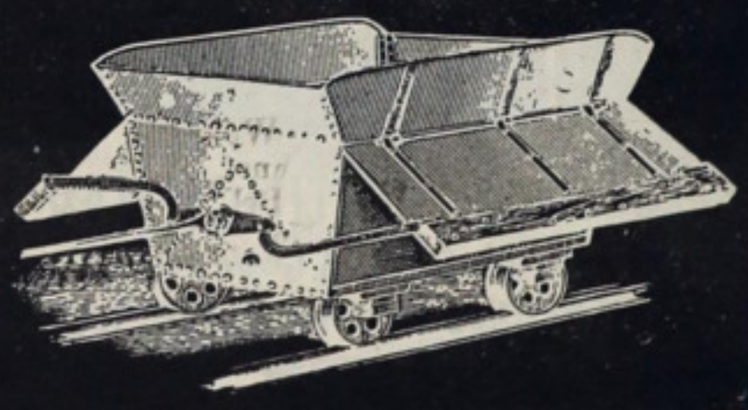

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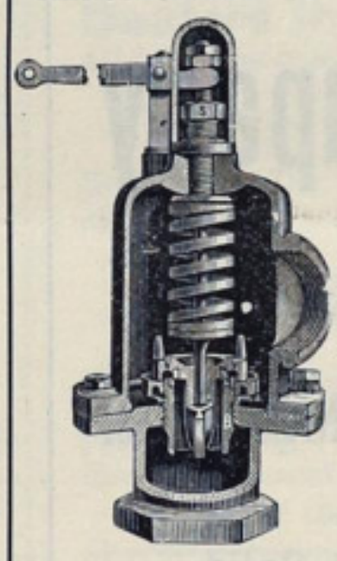

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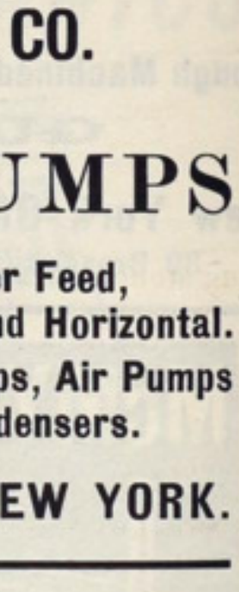

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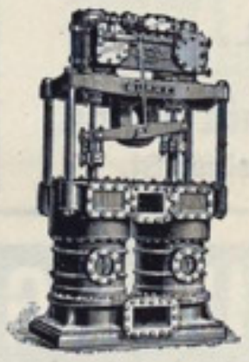

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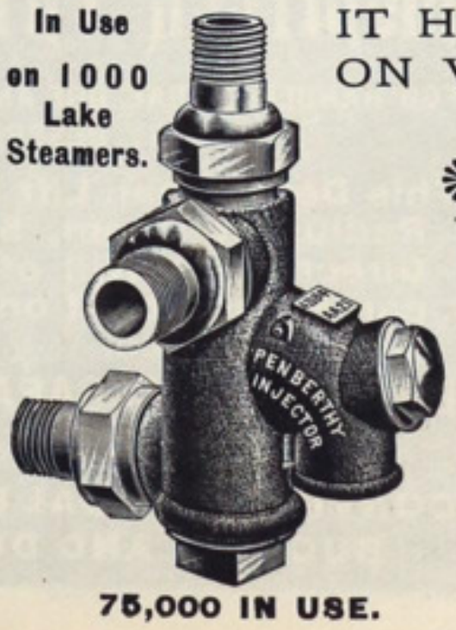

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